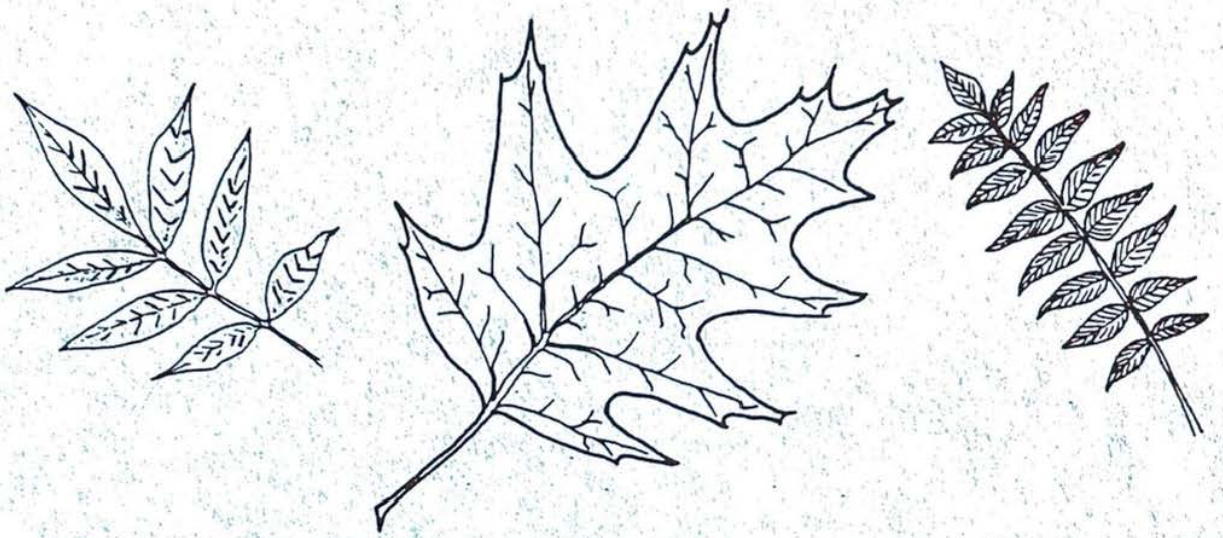
1991 IOWA FOREST HEALTH REPORT



PREPARED BY THE FORESTRY DIVISION IOWA DEPARTMENT OF NATURAL RESOURCES

Wallace State Office Building
Des Moines, Iowa 50319-0034

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1991 IOWA FOREST HEALTH REPORT

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1991 IOWA FOREST HEALTH REPORT

INTRODUCTION

The following is detailed information concerning the health of Iowa's forests during October 1, 1990 to September 30, 1991. This 1991 Iowa Forest Health Report will discuss Iowa Forest Geography, 1991 Iowa Weather Conditions, Forest Health Monitoring Methods, Forest Health Results and Forest Health Needs. Special emphasis to given to the latest developments concerning Gypsy Moth in Iowa. For more information contact: John Walkowiak, Urban Forestry/Forest Health Coordinator, Forestry Division, Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319 (515) 242-5966.

IOWA'S FORESTS

According to the recently completed 1990 Iowa Forest Inventory, there are 2 million acres of timberland in the state. This represents an increase of 1/2 million acres since the last forest inventory in 1974. This forest resource exists in scattered parcels and is owned predominantly by private individuals (92%). Iowa's forests can be categorized into 3 groups, (1) Rural Woodlands, (2) Windbreaks & Shelterbelts, and (3) Urban & Community Trees.

Iowa's rural woodlands make up the majority of the state's forest resources. These woodlands are primarily in the eastern 2/3 of the state, with the largest concentrations along the Mississippi River and along the Missouri state border. Located on uplands, drainages, and bottomlands too difficult to farm, they are deciduous in nature, represented by oak-hickory, maple-basswood and elm-ash-cottonwood forest types. The 1990 forest inventory indicates a decline in the major oak resource with a corresponding increase in maple-basswood.

Iowa's windbreaks and shelterbelts are located in the northern and western portions of the state. This windbreak resource protects farmsteads, livestock and crops. Although the amount of acreage in windbreaks is a small portion of the state's forest resource, these man-made plantings are often the only forest cover available in these areas.

The trees along the streets and in city parks cover approximately 40% of the land surface of the typical Iowa community. In Iowa, this urban or community forest is now receiving substantial recognition as a valuable resource. According to a 1990, 20 Iowa city survey the most dominate species are green ash, sugar maple and silver maple. These three species often total over 60% of the urban forest resource in the typical Iowa community. According to the International Society of Arboriculture landscape tree valuation formula, the typical Iowa urban tree is worth $800.00.

1991 IOWA WEATHER CONDITIONS

Weather in Iowa has major impacts on the health of Iowa's forest resources, and FY91 was no different. The fall of 1990 had normal precipitation and temperatures. The winter had normal snowfall and periods of extreme cold temperatures (< 32 F). The spring for most of Iowa had cool temperatures and above normal precipitation. Flooding problems were common in northern and central regions of the state. However, little precipitation fell in southeastern Iowa during the spring. The summer turned hot and dry, with little precipitation throughout the state. Most trees possessed a large of amount of foliage and were stressed during the droughty summer.

1991 IOWA FOREST HEALTH MONITORING METHODS

Due to limited staff and financial resources during 1991 four forest health monitoring methods were used in Iowa: (1) aerial survey, (2) district forester visual reports, (3) urban forester visual reports and (4) Gypsy Moth trapping.

From July 22 to 24, 1991 a statewide aerial survey was conducted by the Forestry Division. Utilizing a light aircraft, predetermined flight lines were prepared of the largest concentrations of forestland in the five regions of the state: central, southeastern, western, northeastern and eastern Iowa. Flying at an elevation of 1,000 feet above ground, areas of discoloration or defoliation were marked on 7 1/2 minute quad maps by two visual observers. These suspected sites were then ground checked by the area foresters of the Forestry Division during August. The following sites were surveyed: (See Figure 1).

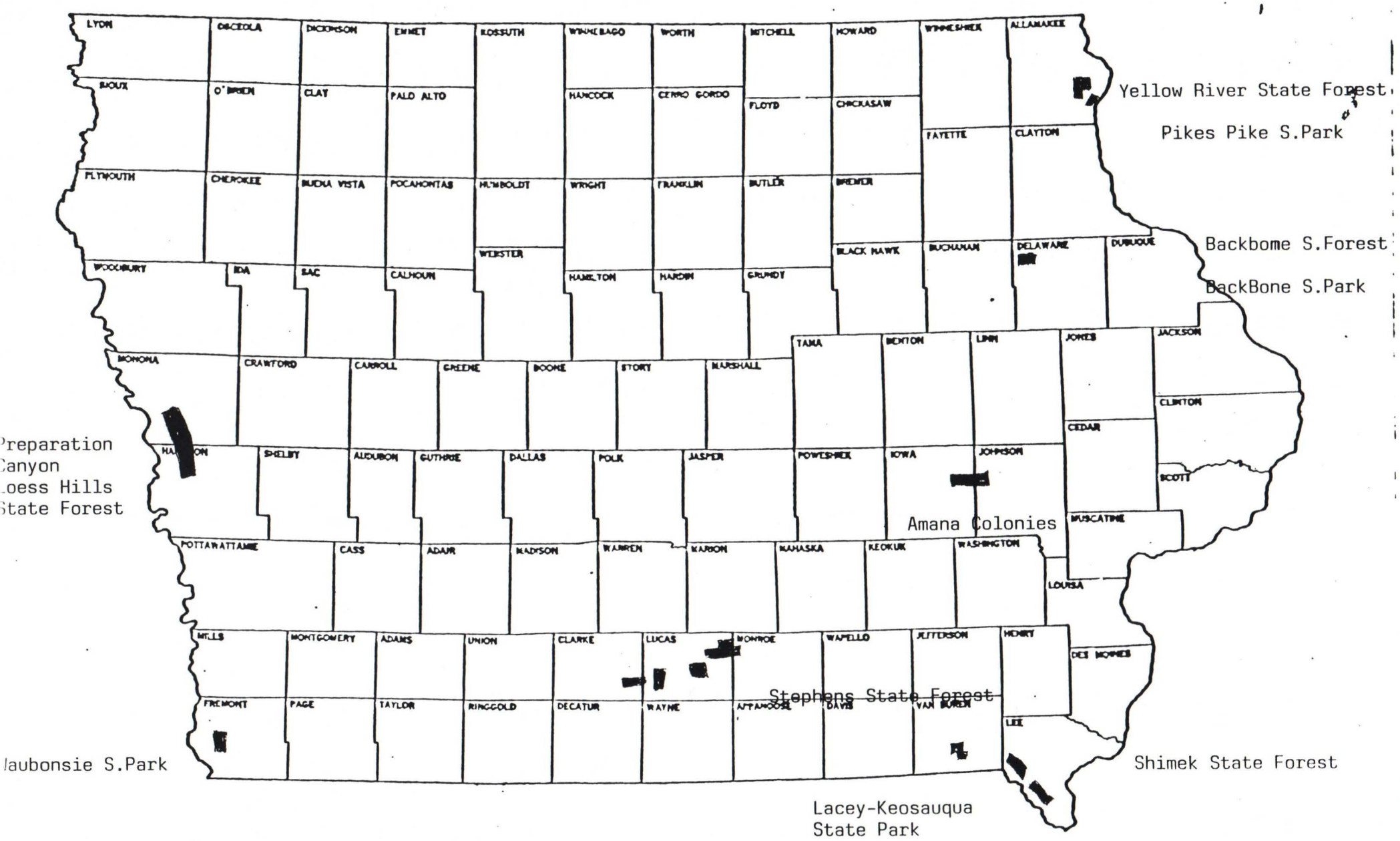


Figure 1. 1991 Iowa Forest Pest Aerial Survey Sites

Stephens State Forest	Shimek State Forest
Lacey-Keosauqua State Park	Loess Hills State Forest
Preparation Canyon Park	Waubonsie State Park
Yellow River State Forest	Pikes Pike State Park
Backbone State Park	Backbone State Forest
Amana Colonies	

This aerial survey involved approximately 46,000 acres or 2.3% of Iowa's total forest resource.

The second method involved visual inspection reports by the Forestry Division's 12 district service foresters (Attachment I). A report form (Attachment II) was submitted by service foresters at the end of July and end of August representing forest health problems of woodlands and windbreaks. Information was then tabulated by service forester district and for the state.

The final monitoring method utilized visual inspections by 9 city foresters and the Forestry Division's urban forestry coordinator of 12 communities statewide. The 12 cities were selected to expand the visual survey to include urban areas and to utilize the talents of the 9 full-time and part-time city foresters/arborists. The following communities were surveyed: (See Figure 2)

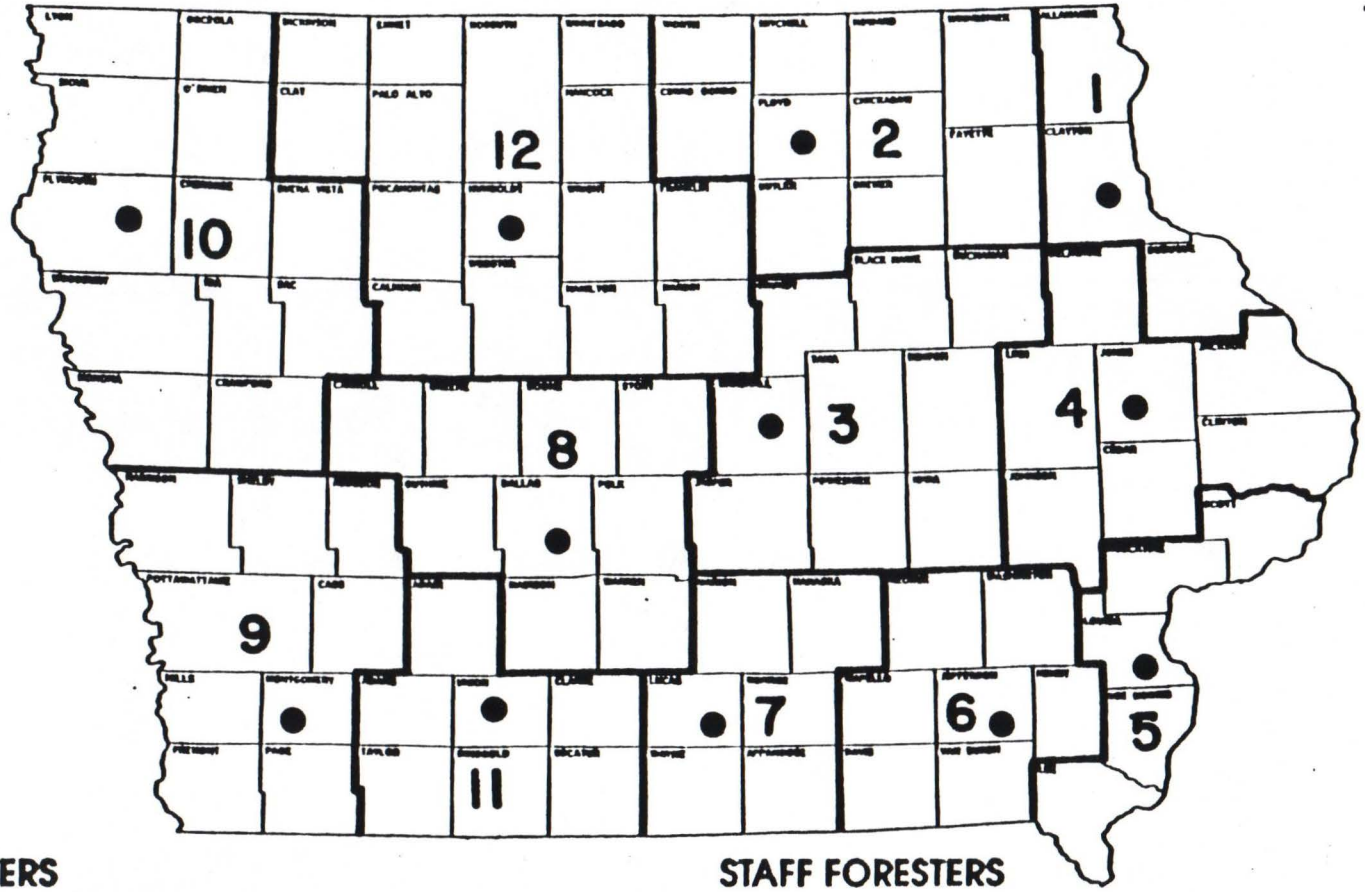
Davenport	Fort Dodge	Boone
Cedar Rapids	Dubuque	Iowa City
Waterloo	Burlington	Council Bluffs
Des Moines	Sioux Center	Albia

A report form (Attachment II) was submitted by participating foresters at the end of August representing forest health problems of urban and community trees. Results were then tabulated by community and for the state.

For approximately the 10th year, an intensive Gypsy Moth trapping program was coordinated by the State Entomologist from the Iowa Department of Agriculture and Land Stewardship with USDA Animal, Plant Health Inspection Service (APHIS), DNR, Corps of Engineers and several County Conservation Boards. Utilizing sticky traps that possess female scent pheromones, a total of 2,629 traps were placed in 89 out of 99 Iowa counties during the summer of 1991. All traps were in place by July 12th and were removed by August 30th.

Attachment I. District Foresters of Iowa and Pest Report Sites for 1991

FORESTRY DISTRICTS



DISTRICT FORESTERS

For forestry assistance, contact the forester for your county.

District 1 – Janet Ott – 319/245-1891 – Box 662, Elkader 52043
District 2 – Gary Beyer – 515/228-6611 – Box 4, Charles City 50616
District 3 – Robert Hibbs – 515/752-3352 – Box 681, Marshalltown 50158
District 4 – Steven Swinconos – 319/462-2768 – Box 46, Anamosa 52205
District 5 – Stanley Tate – 319/523-8319 – 515 Townsend Ave., Wapello 52653
District 6 – Ray Lehn – 515/472-2370 – Box 568, Fairfield 52556
District 7 – Duane Bedford – 515/774-4918 – Box 310, Route 2, Chariton 50049
District 8 – George Warford – 515/993-4133 – 110 S. 8th, Adel 50003
District 9 – Allan Pratt – 712/623-4252 – Box 152, Red Oak 51566
District 10 – Joseph Schwartz – 712/546-5161 – 1100A 12th Street S.W., LeMars 51031
District 11 – Randy Goerndt – 515/782-6761 – 500 E. Taylor, Creston 50801
District 12 – Gail Kantak – 515/332-2761 – 102 Eighth St. S., Humboldt 50548

STAFF FORESTERS

AT THE STATE FOREST NURSERY, 2404 SOUTH DUFF, AMES 50010.
PHONE 515/233-1161.
Gerald Grebasch, Forestation Program and Nursery Manager.
Roy Hatcher, Protection Forester.
Jerry Kemperman, Forestry Services Supervisor.
John Tibben, Utilization Forester.
Roger Jacob, Assistant Nursery Manager.

AT THE STATE FOREST NURSERY, ROUTE 1, BOX 307A, MONTROSE, IOWA 52639
Assistant Nursery Manager. Phone 319/463-7167

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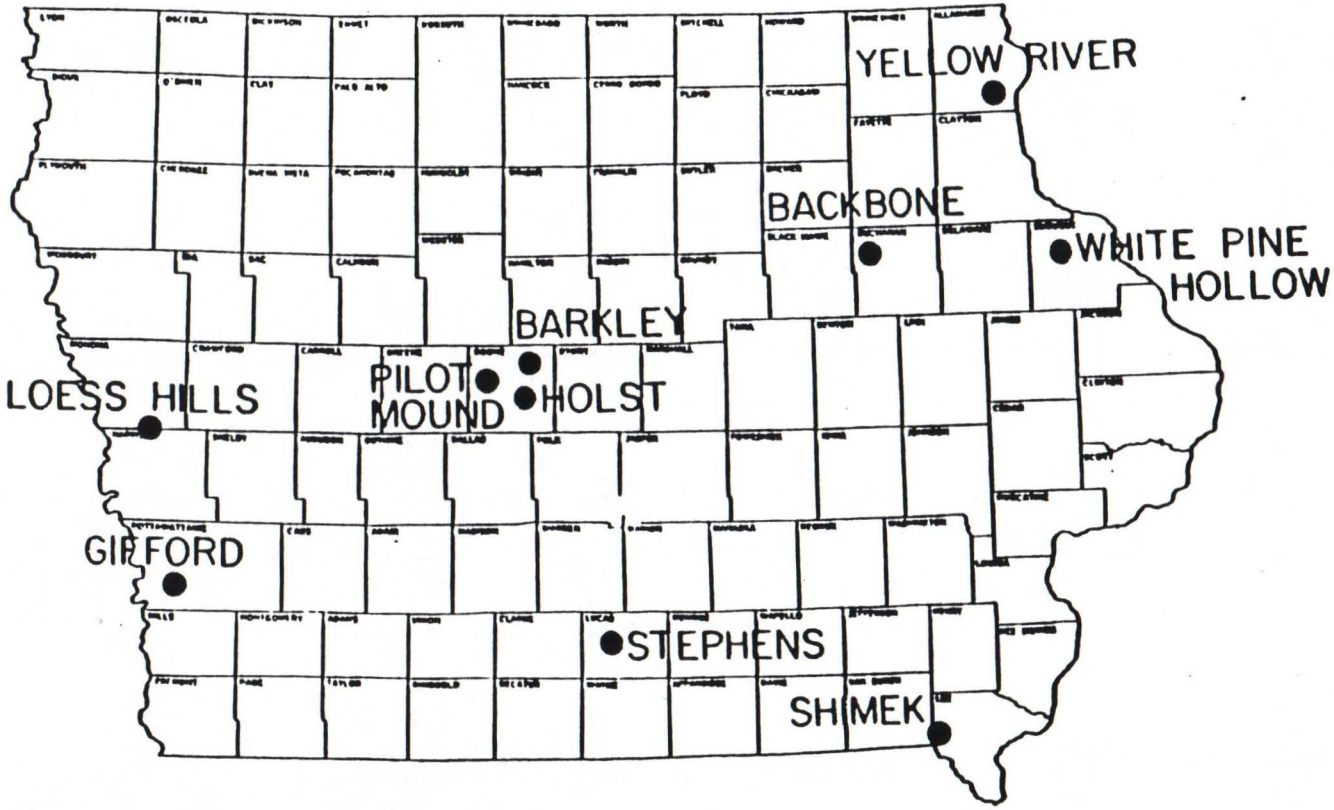
STATE FORESTS



Shimek State Forest - Wayne Fuhlbrugge, Area Forester, Farmington, Iowa 52626, 319/878-3811. This 8,553-acre forest is 20 miles west of Fort Madison in Lee and Van Buren Counties. It offers hunting, hiking, picnicking, camping, horseback riding and fishing.

Stephens State Forest - Randy Cook, Area Forester, Route 3, Chariton, Iowa 50049, 515/774-4559. Located in Lucas, Monroe, Appanoose and Davis Counties. This 9,202-acre offers hunting, hiking, picnicking, camping and fishing.

Yellow River State Forest - Bob Honeywell, Area Forester, Box 115, McGregor, Iowa 52157, 319/586-2254. Located ten miles north of McGregor in Allamakee County, this 6,548-acre forest offers hunting, hiking, cross-country skiing, snowmobiling, fishing, picnicking and camping.

Loess Hills State Forest - Area Forester. In the process of being acquired, this major state forest in Harrison and Monona Counties will be about 18,000 acres in size and offers fishing, hiking and hunting. It is presently 3,890 acres.

Holst State Forest - Located 12 miles northwest of Boone in Boone County, it contains 333 acres.

Pilot Mound Area - Located one-half mile south of Pilot Mound in Boone County, this area contains 33 acres.

Gifford Forest Area - One mile south of Council Bluffs, this 40-acre tract is representative of the bottomland forests of the Missouri River valley.

Backbone State Forest - Located four miles southwest of Strawberry Point in Delaware county. The area consists of 200 acres of pine plantations and native forests.

Barkley State Forest - Located two miles east of Fraser, totals 40 acres.

White Pine Hollow - Located two miles west and one mile north of Luxemburg in the northwest corner of Dubuque County, this 712-acre area is a state preserve.

Attachment II. Forest Pest Report for 1991 used in Iowa

IOWA PEST SURVEY FORM

JULY 19___

DISTRICT_____ SEPT.19___

PEST	HOST SPECIES *	AMOUNT OF DAMAGE Severity** Acres Month	COUNTIES OR CITIES ***
		Comments:	
		Comments:	
		Comments:	
		Comments:	
		Comments:	
		Comments:	
		Comments:	
		Comments:	

* Name and indicate location: Forest (F); Plantation (P); Windbreak (W); or Urban (U).

** Severity: Light (L) - little damage to trees or stand; Moderate (M) - considerable growth loss or defoliation/death of up to 1/4 of stand; Heavy (H) - defoliation/death of over 1/4 of tree tree or stand.

*** If pest is in an urban area then indicate city or cities where it is found.

SEE BACK OF FORM FOR ADDITIONAL INSTRUCTIONS.

REPORTS ARE DUE JULY 15th & SEPTEMBER 15th

Extra traps (214) were used to delimit areas where Gypsy Moth were recovered in 1990. DNR foresters placed and checked 121 Gypsy Moth traps.

IOWA FOREST HEALTH SURVEY RESULTS

Survey results will first be described for each method used, location, and amount of acres affected (woodlands only). Figures will then be extrapolated for an estimate of statewide forest health conditions.

Stephens State Forest
Total acres = 9,202 ac.

Oak Wilt - 40 ac.
Dutch Elm Disease - 12 ac.
Red Pine Decline - 6 ac.
Two-lined Chestnut Borer - 3 ac.
Jack Pine Decline - 3 ac.

Shimek State Forest
Total acres = 8,553 ac.

Oak Wilt/Decline - 56 ac.
Dutch Elm Disease - 4 ac.
Pine nematode - 3 ac.
Red Pine Decline - 12 ac.
Jack Pine Decline - 10 ac.
White Pine Decline - 1 ac.

Lacey-Keosauqua State Park
Total acres = 1,687 ac.

Oak Wilt/Decline - 60 ac.

Loess Hills State Forest
Total acres = 5,500 ac.

Oak Wilt - 5 ac.
Dutch Elm Disease - 6 ac.
Fire - 18 ac.
Herbicide - 6 ac.

Preparation Canyon State Park
Total acres = 344 ac.

Dutch Elm Disease - 2 ac.

Waubonsie State Park
Total acres = 1,247 ac.

Oak Wilt - 18 ac.
Dutch Elm Disease - 4 ac.
Ash Decline - 6 ac.

Yellow River State Forest
Total acres = 7,300 ac.

Oak Wilt - 12 ac.
Two-lined Chestnut Borer - 5 ac.
Cottonwood leaf spot - 10 ac.
Austrian Pine Decline - 7 ac.

Pikes Pike State Park
Total acres = 970 ac.

Oak Wilt - 5 ac.

Backbone State Park
Total acres = 1,780 ac.

Oak Wilt - 25 ac.
Two-lined Chestnut Borer - 10 ac.

Backbone State Forest
Total acres = 200 ac.

Oak Wilt - 10 ac.

Amana Colonies
Total acres = 10,000 ac.

Oak Wilt - 10 ac.
Flood Damage - 15 ac.

The sites chosen for the aerial survey are believed to be representative of the rural woodlands of Iowa, therefore utilizing simple extrapolation of this 2.3% sample the information below would be an estimate of total acres affected within 95% confidence limits:

Forest Health Problem	Estimated State Acres
Oak Wilt/Decline	10,478 ac. ± 6622
Dutch Elm Disease	1,217 ac. ± 760
Red Pine Decline	130 ac. ± 486
Two-lined Chestnut Borer	652 ac. ± 402
Pine Nematode	130 ac. ± 78
Jack Pine Decline	43 ac. ± 347
White Pine Decline	43 ac. ± 347
Fire	782 ac. ± 472
Herbicide	260 ac. ± 164
Ash Decline	260 ac. ± 164
Cottonwood Leaf Spot	435 ac. ± 262
Flood Damage	435 ac. ± 262
Total	14,865 ac. ± 9361

From the visual inspection reports sent in by all 12 DNR district foresters at the end of July and August a total of 41 different forest health problems were observed. The most significant forest health problems observed are (please refer to Attachment I):

Forest Health Problem Observed	Comments
Two-Lined Chestnut Borer	Heavy in District 4
Oak Wilt/Decline	Heavy in all Districts
Dutch Elm Disease	Moderate in all Districts

Ash Decline/Yellows	Moderate in all Districts
Anthracnose	Moderate in all Districts
Pine Sawfly	Light in all Districts
Dipolda Tip Blight	Moderate in all Districts
Herbicide drift	Heavy in District 3
Drought	Heavy in District 5

From the visual reports sent in by 9 city urban foresters/arborist and 3 completed by the Forestry Division's urban forestry coordinator at the end of July, 41 forest health problems were observed in these selected urban areas. Urban forest health problems were not measured in acres, since diagnoses involves individual trees. The most significant urban forest health problems observed were: (Refer to Figure 2)

Urban Forest Health Problems	Comments
Drought	Heavy in all urban areas
Dutch Elm Disease	Moderate in most areas
Oak Wilt	Moderate in most areas
Verticillium Wilt	Heavy in Quads & Iowa City
Anthracnose	Moderate in all areas
Bronze Birch Borer	Heavy in Dubuque
Cytospora canker	Heavy in Sioux Center
Aphids	Moderate in all areas
Cedar Apple Rust	Heavy in all areas
Ash Leaf Hopper	Moderate in Burlington
Ash Decline	Moderate in all areas
Elm Leaf Beetle	Heavy in Council Bluffs

At the close of the 1991 summer season, the following information was documented regarding the Gypsy Moth in Iowa by the State Entomologist of the Iowa Department of Agriculture and Land Stewardship. A total of 60 male Gypsy Moths were recovered from 41 traps in 10 counties (See Figure 3).

A small and active Gypsy Moth infestation exists within the City of Long Grove (Scott County), Iowa, some 12 miles north of Davenport. This infestation has been delimited this past summer and is has been determined that only 4 properties are involved (contiguous residential properties). A treatment encompassing some 10 acres will be planned during the fall of

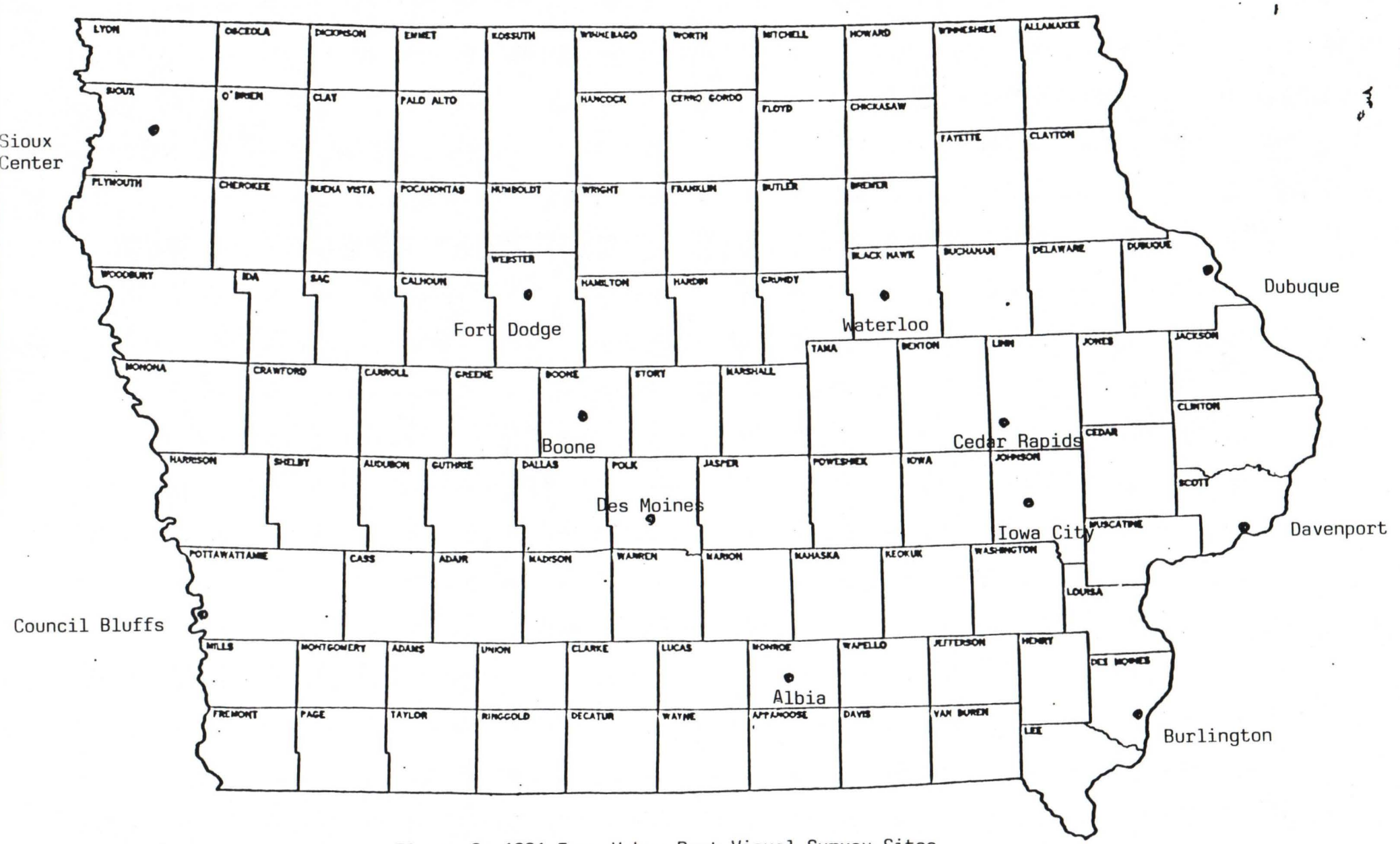
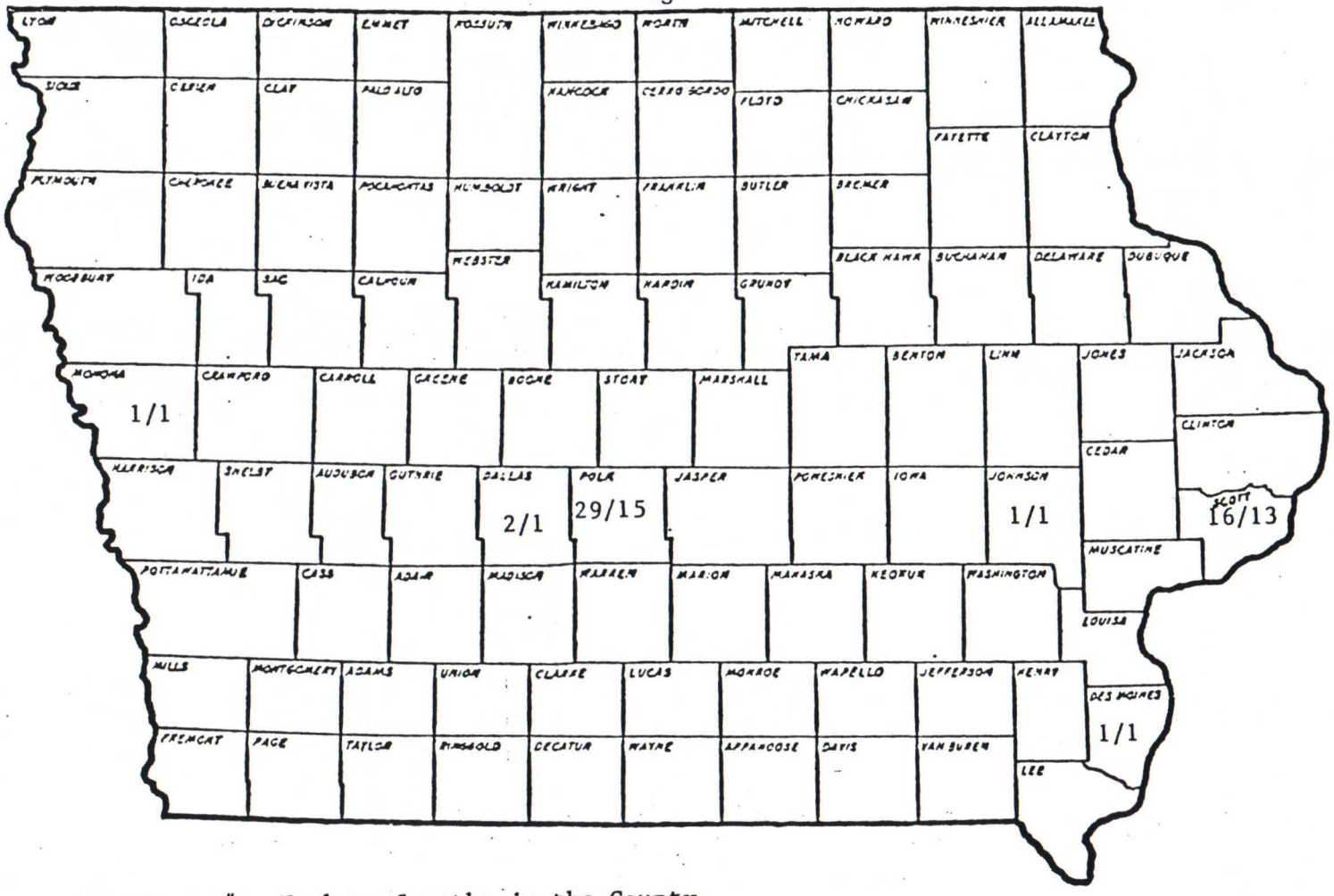


Figure 2. 1991 Iowa Urban Pest Visual Survey Sites

1991 - POSITIVE RECOVERIES OF GYPSY MOTHS

Figure 3. 1991 Gypsy Moth in Iowa



As of July 19, 1991.

Upper # = Number of moths in the County.
Lower # = Number of traps in the County capturing moths.

92 and executed next spring with local officials and residents. This infestation was the result of one homeowner moving into Long Grove, Iowa from New Jersey.

In July, knowledge about the shipment of Gypsy Moth infested nursery stock to three Iowa firms was obtained. The only trees with evidence of Gypsy Moth infestation received in Iowa were Colorado Blue Spruce, shipped from the Unique Nursery of Quakertown, Pennsylvania. The 3 firms who purchased this infested stock were the Natural Plus Nursery in Clear Lake, Iowa, and two Sutherland Lumber Company retail stores in Des Moines.

The Natural Plus Nursery received 825 Blue Spruce and sold 526 of the trees when first inspected by the State Entomologist on July 24th. Inspections revealed some spent Gypsy Moth egg masses and at least a few new - viable egg masses on site and adjacent to the Nursery site. Remaining trees were inspected and treated and are now free of infestation. Further evaluations of the nursery site and adjacent areas will be made during the fall of 91, with some form of treatment in the spring of 92. The owners of Natural Plus were able to produce records of all tree sales, which allowed a complete trace of all infested blue spruce sold. Approximately, 80 sites have been located and are in the process of being inspected.

Two Sutherland Lumber Company stores in the Des Moines metro area sold a total of 444 Colorado blue spruce from the Unique Nursery before contacted by the State Entomologist. No sales records were kept. An immediate appeal to the public was issued through news reports asking purchasers to contact the State Entomologist if they had bought blue spruce form these retail outlets. Gypsy Moth cards produced by USDA Forest Service Focus Funding Grant," Don't give the Gypsy Moth A Free Ride" have been widely used in the public education efforts. Approximately 80% of these tree purchases have been located, with 75% of these blue spruces having confirmed spent Gypsy Moth egg masses. It is reasonable to assume the large increase in male Gypsy Moths caught in the Des Moines metro area can be attributed to the planting of these infested trees. There are over 80 additional sites that extend from Marshalltown to the Des Moines metro area to the Missouri border that need to be inspected. A survey of these suspected sites is now in the planning stages, and detection level trapping will also be increased during 1992.

An established Gypsy Moth Technical Committee will assist the State Entomologist in future efforts.

IOWA FOREST HEALTH NEEDS

All state agencies and public universities have experienced significant state budget cuts, including personnel. The chances of adding personnel for expanded forest health activities in Iowa is slim during the remainder of FY92. Therefore, forest health efforts in Iowa should aim to improve interagency cooperation, expand partnerships with communities, and maintain surveying efforts. Gypsy Moth is certainly the biggest challenge facing Iowa forests in the near future, but efforts should also analyze and result in management efforts to reduce existing past problems. This report recommends the following objectives be accomplished during FY92:

(1) Maintain and expand efforts of the State Entomologist Office and for the Gypsy Moth Technical Committee - utilize talents and abilities to minimize the increase in Gypsy Moth population in the State. (State Entomologist, IA Dept. of Agriculture and Land Stewardship)

(2) Create and coordinate a Forest and Shade Tree Health Task Force in Iowa - to better coordinate forest health problems and needs. This group will establish a 5 year Iowa Forest andShade Tree Health Action Plan. If funds are available, this group will create a forest health reference handbook of existing publications for Iowa tree professionals (Forestry Division/Iowa Dept of Natural Resources).

(3) Encourage the attendance of professional and non-professional forestry/arboricultural people to the Iowa Shade Tree Short Course on March 10-11, 1991 to increase forest and shade tree health knowledge (ISU Extension).

(4) Establish annual training programs for Forestry Division personnel and forestry consultants on forest and shade tree health problems. Efforts should expand beyond identification and involve management efforts (Integrated Pest Management) (Forestry Division/ Iowa Department of Natural Resources, USDA Forest Service and ISU Extension).

(5) Complete the annual Iowa aerial forest pest survey and necessary ground checks during late July, 1992 (Forestry Division).

(6) Have Iowa district service foresters complete a single visual forest pest report by August 15, 1992. Add selected forestry consultants to complete this visual pest report to gain expanded information (Forestry Division).

(7) Have 25 community professionals complete a single urban forest pest report by August 15, 1992 (Forestry Division).

(8) Complete 1992 Forest Health Report for Iowa by September 30, 1992 (Forestry Division).